Nanodiamond sensors for microbiology and cell biology

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Stellingen behorende bij het proefschrift Nanodiamond biosensors for cell biology and microbiology

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1. In the process of milling bulk diamond into nanoparticles, diamond preferentially fractures along the {110} family of crystal planes. (this thesis)

2. Size and shape distribution accounts for a major spread in coherence time of nitrogen-vacancy centers in nanodiamond. (this thesis)

3. Reduction of *S. Aureus* colony counts due to interaction with nanodiamonds does not result from toxicity, but aggregation. (this thesis)

4. Milled nanodiamonds exhibit no measurable antibacterial effect in the concentration range relevant for biosensing applications. (this thesis)

5. Understanding the dynamics of nitrogen-vacancy center ensembles is a crucial step toward realizing applications.

6. Antibacterial activity of materials should be considered in combination with the medium in which experiments are performed.

7. One cannot understand a system by studying all its parts without considering the relations between the parts.

8. Many of the world's problems will not be solved until we understand why people keep forgetting to floss their teeth.